

P-9.2 Apply appropriate procedures to solve problems involving pressure, force, volume, and area

Revised Taxonomy Level 3.2 C_A Apply procedural knowledge
Students did not address this indicator in physical science

It is essential for all students to

- ❖ Understand that pressure is the force applied per unit area, $P = F/A$
- ❖ Understand that pressure is measured in units of Pascal's in the metric system (N/m^2)
- ❖ Explain the difference between absolute and gage pressure
- ❖ Use the formula $P = P_0 + \rho gh$
- ❖ Where
 - P = pressure
 - P_0 = original pressure
 - ρ = density
 - g = acceleration of gravity
 - h = depth
- ❖ Use the formula $P = F/A$
- ❖ Where
 - P = pressure
 - F = force
 - A = area

Assessment

The revised taxonomy verb for this indicator, apply, means that the major focus of assessment will be for students to show that they can “apply a procedure to an unfamiliar task”. The knowledge dimension of the indicator, procedural knowledge means “knowledge of subject-specific techniques and methods” In this case the procedure for solving problems involving pressure. A key part of the assessment will be for students to show that they can apply the knowledge to a new situation, not just repeat problems which are familiar. This requires that students have a conceptual understanding of fluids and pressure, volume and area